



A NEW METHOD TO SYNTHESIZE ANTI MALARIAL DRUG AND ITS ANALOGUES

NCL Innovations: Solutions from CSIR India

Technology

- ❑ Plasmodium *Falciparum*, the parasitic micro organism that causes the most clinically severe type of malaria is becoming increasingly multi-drug resistant
- ❑ New drug molecules are urgently required to be developed against such plasmodium strains

Our solution

- ❑ Recently it has been discovered that naturally derived compounds called flinderoles show impressive anti-malarial activity
- ❑ We have developed a novel method for synthesizing flinderole analogues using a fully synthetic route (total synthesis) which has an overall yield of 17.2%
- ❑ The process developed will enable to produce these anti-malarial compounds in commercial quantities

Problem

Applications

- Developing anti malarial drugs
- Agriculture

Market Potential

- In 2008, there were 247 million cases of malaria and nearly one million deaths*
- Over \$1.8 billion was spent in 2010 to control malaria**
- There is a pressing need to develop new malarial drugs as the in many countries it has been identified that P. Falciparum is resistant to conventional malaria drugs like chloroquine, sulfadoxine-pyrimethamine and amodiaquine***

*<http://www.who.int/mediacentre/factsheets/fs094/en/>

** World Malaria Report, 2010, World Health Organization

*** WHO briefing on Malaria Treatment Guidelines and artemisinin monotherapies Geneva, 2006

Value

- Potentially could be used to treat drug resistant strains of *Plasmodium falciparum*
- A simple and efficient process
- The process developed results in high yields (17%) of flinderole analogues
- The process is useful for the production of commercial quantities of these compounds

Technology Status, IP Status

- Patent application filed
- Ready to be licensed/commercialized
- Demonstrated at lab level

Links & References

- Fernandez, L.S. et al. (2009) Flinderoles A-C: Antimalarial Bis-indole Alkaloids from *Flindersia* Species, ORGANIC LETTERS, 11 (2), 329-332.
- Dethe, D. et al. (2011) Biomimetic Total Syntheses of Flinderoles B and C, J. Am. Chem., 133, 2864-2867.
- Fidock, D.A. et al. (2004) Anti Malarial Drug Discovery: Efficacy models for compound screening, Nature Reviews: Drug Discovery, 3, 509-520.
- World Malaria Report 2010, World Health Organization (WHO) Global Malaria Program
<http://www.who.int/malaria/publications/atoz/9789241564106/en/index.html>

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Summary

Technology Summary	
Technology title	A New method to synthesize anti malarial drug and its analogues
Industry /sector	Drugs/Pharmaceuticals
Year of development	2010
Related patents (with links)	Patent application filed
Technology readiness level	Demonstrated in lab
Licensing status	Ready to be licensed
Encumbrances	None
Availability	Yes